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THE TECHNOLOGICAL INTERPRETATION OF HISTORY

SUMMARY

I. Marx's view of history is technological not economic. — II. The social process according to Marx, 75. — III. Technological changes, the class struggle and human adjustments to environment, 75. — IV. Forces lying back of technological evolution, according to Marx and Engels: extension of markets, development of science, cosmic evolution, 78. — V. The Marxian view against the background of fundamental factors and forces, 80. — VI. Criticism of the Marxian theory, 82. — VII. Conclusion, 83.

I

It has become the fashion of late to refer to the Marxian interpretation of history as an "economic" interpretation, and to drop the term "materialist" used by Marx and Engels. Indeed one recent writer goes so far as to say that "there is no logical connection either way between philosophic materialism and what is called the 'materialistic conception of history.' . . . Economic causes operate through men's desire for possessions, and would be supreme, even if desire could not, from a philosophic point of view, be explained in materialistic terms."¹ Thus this so-called economic interpretation becomes at last a psychological interpretation.

Marx and Engels, however, use the term "materialist" in describing their theory. While the writer believes, for reasons that will become apparent later, that this term describes their view more accurately than the term "economic," nevertheless it must be conceded

1. Bertrand Russell, "Bolshevik Theory," *New Republic*, September 15, 1920.

that it is open to criticism on the ground that it is too broad. There are various materialist interpretations of history — geographic, climatic, and technological. The Marxian interpretation, however, is technological.

The special theory of Marx can best be set forth by quotations from his writings: "It is not the articles made, but *how they are made*, and *by what instruments*, that enables us to distinguish different historical epochs. *Instruments of labor* not only supply a standard of the degree of development to which human labor has attained, but they are also indicators of the social conditions under which that labor is carried on." ² Speaking of the "*technological* comparison of different epochs of production" he says: "However little our written histories up to this time notice the development of *material production*, which is the basis of all social life, and therefore of all real history, yet prehistoric times have been classified in accordance with the results not of so-called historical, but of materialistic investigation. These periods have been divided, to correspond with the *materials from which their implements and weapons are made*, viz., into the stone, the bronze, and the iron ages." ² From Engels we have the following: ". . . the whole of history up to the present time is to be regarded as the history of the period extending from the time of the practical discovery of the transformation of mechanical movement into heat to that of the transformation of heat into mechanical movement." ³ Clearly this is technology and not economics.

Marx, it is true, does refer to the economic structure of society as the foundation on which rise legal and political superstructures. But at the base of the economic structure of society he never allows us to lose

2. Capital, Kerr edition, vol. i, p. 200.

3. Engels, Landmarks of Scientific Socialism, translated by Lewis, Kerr edition, pp. 148, 149.

sight of the foundation stones of technology. The economic structure is referred to as "relations of production"; the technological foundation underlying the economic structure is referred to as "methods of production" and "material forces of production." "In the social production which men carry on they enter into definite *relations* that are indispensable and independent of their will; these *relations of production* constitute the economic structure of society — the real foundation, on which rise legal and political superstructures and to which correspond definite forms of social consciousness. The *mode of production* in material life determines the general character of the social, political and spiritual processes of life. . . . At a certain stage of their development the *material forces of production* in society come in conflict with the existing *relations of production*. . . . New higher *relations of production* never appear before the *material conditions* of their existence have matured in the womb of society. . . . In broad outlines we can designate the Asiatic, the ancient, the feudal, and the modern bourgeois *methods of production* as so many epochs in the progress of the *economic formation* of society." ⁴

From these quotations it must be clear that, while Marx looks upon the economic structure of society as the basis for the political and intellectual superstructure, he finds the foundation upon which the economic structure is built in technology, in the mechanical modes of production. He distinguishes, in short, between the economic basis of society and the technological basis of society.

4. Marx, Critique of Political Economy, translation by Stone, pp. 11-13.

II

There are then according to Marx three distinct steps in the social process: (1) changes in the technique of production; (2) changes in the economic structure of society — in the “relations of production,” the “property relations” (such as free competition, freedom of enterprise, private property on the one hand; or monopoly, public regulation, public ownership and coöperation on the other); (3) changes in political, social and intellectual institutions. Changes in technique necessarily alter the economic structure of society, which in turn affects government, social institutions, and the controlling ideas of the age.

With Marx, then, the foundation upon which any society is built is the technique of production and transportation. Industrial society is conditioned by this technique. The economic structure of society is the adjustment that human beings in all their economic interrelations have made to the conditions imposed by technology. Political interrelations in turn must conform to the economic structure of society. So also with other social institutions. Thus the superstructure is reared on the basis of the economic structure, which in turn rests on the technique of production. “Man makes his own history, but he does not make it out of whole cloth, he does not make it out of conditions chosen by himself, but out of such as he finds close at hand.” ⁵

III

Engels' statement of the theory differs somewhat from that of Marx, but he agrees in his emphasis on the technological basis of society. He defines “historical materialism” as “that view of the course of history

5. Marx, *The Eighteenth Brumaire*, translated by DeLeon, p. 9.

which seeks the ultimate cause and the great moving power of all important historic events in the economic development of society, in the changes in the *modes of production and exchange*, in the consequent division of society into distinct classes, and in the struggle of these classes against one another.”⁶ “From this point of view the final causes of all social changes and political revolutions are to be sought, not in men’s brains, not in man’s better insight into eternal truth and justice, but in the *changes in the modes of production and exchange*. . . . From this it also follows that the means of getting rid of the incongruities that have been brought to light must also be present, in a more or less developed condition, within the changed *modes of production* themselves. These means are not to be invented by deduction from fundamental principles, but are to be discovered in the stubborn facts of the existing *system of production*.”⁷

Engels’ statement of the theory may be summarized as follows: (1) changes in the modes of production and exchange; (2) the consequent formation of new class alignments; (3) class conflicts growing out of this new alignment; (4) reconstruction of economic, social, political and intellectual institutions.

The fundamental difference between the Engels’ version and the Marxian lies in the emphasis that Engels places on class alignments and class conflicts. In his introduction to the Communist Manifesto he tells us that “the whole history of mankind has been a history of class struggles.” Marx places the matter on a broader basis. With him the technical changes in the modes of production necessitate new human and social adjustments to the changed technological environment. True, so far as changes in the economic and political institu-

6. Engels, *Socialism, Utopian and Scientific*, Kerr edition, p. 23.

7. *Ibid.*, pp. 94, 95.

tions of society are concerned, such adjustments constitute an effort on the part of society as a whole to come to terms with the new technological conditions. And since any adjustment on the part of society as a whole to new situations involves injury and suffering for some groups, and benefit and progress for others, the necessary result is a struggle arising out of opposing class interests. All adjustments involving social interrelations must result in conflict. But many adjustments do not involve complex interrelations. For example take Marx's discussion of the effect of capitalism on parental exploitation of children. Marx tells us that "it was the capitalistic mode of exploitation which, by sweeping away the economical basis of parental authority, made its exercise degenerate into a mischievous misuse of power."⁸ Clearly the class struggle had no part in the adjustment of family conditions to the factory system of production. Another example would be the effect of modern industrialism on Sunday observance and religious belief. On the other hand Marx points out that a person's intellectual outlook and ideals, tho the individual himself may be unaware of it, are frequently a product of class antagonisms based on a clash of economic interests. "Upon the several forms of property, upon the social conditions of existence, a whole superstructure is reared of various and peculiarly shaped feelings, illusions, habits of thought and conceptions of life. The whole class produces and shapes these out of its material foundation and out of the corresponding social conditions. The individual units to whom they flow through tradition and education, may fancy that they constitute the true reasons for and premises of his conduct."⁹

8. *Capital*, Kerr edition, vol. i, p. 536.

9. Marx, *The Eighteenth Brumaire*, translated by DeLeon, p. 48.

IV

Social dynamics then go back ultimately, according to Marx and Engels, to changes in the modes of production. But, one may ask, what brings about these changes in the modes of production? In the Communist Manifesto, Marx and Engels sought to explain how changes in the modes of production brought on the downfall of feudalism. What brought on these changes in technique which felled feudalism? It was the widening of the market. "The East Indian and Chinese markets, the colonization of America, trade with the colonies, the increase in the means of exchange and in commodities generally, gave to commerce, to navigation, to industry an impetus never before known. . . . The feudal system of industry, under which industrial production was monopolized by close guilds now no longer sufficed for the growing wants of the new markets. The manufacturing system took its place. . . . Meantime the markets kept ever growing, the demand ever rising. Even manufacturing no longer sufficed. Thereupon, steam and machinery revolutionized industrial production. The place of manufacture was taken by the giant, Modern Industry. . . ."

This still leaves us hanging in mid-air. What were the factors which brought on the widened market? The answer of the Communist Manifesto is: "The discovery of America, the rounding of the Cape. . . ." In short, the development of the science of navigation. And back of this scientific development lies the quest for treasure, land and livelihood. Engels expressed the causal relation as follows: "Although technique is mainly dependent on the condition of science, it is still more true that science depends on the condition and needs of technique. A technical want felt by society is more of an impetus to

science than ten universities.”¹⁰ So Engels solved the riddle by arguing in a circle: technique depends on science, and science depends on technique. By implication, however, one would infer that possibly “ten universities,” interested in research for its own sake, might contribute something to science independently of the impetus of the needs of technique.

But of course Marx and Engels did go back to more fundamental ultimates than those so far enumerated. They were philosophical materialists. They write: “It is impossible to separate thought from matter that thinks. This matter is the substratum of all changes going on in the world.”¹¹ From Marx we have the following: “I was led by my studies to the conclusion that legal relations as well as forms of state could neither be understood by themselves, nor explained by the so-called general progress of the human mind, but that they are rooted in the material conditions of life. . . .”¹² One has only to read Engels’ *Landmarks of Scientific Socialism* to realize that he seeks for ultimate causes in the forces inherent in cosmic evolution. Physical evolution is there surveyed in terms of Kant’s nebular theory; organic evolution in terms of Darwinism.

Why then are changes in the modes of production and exchange referred to as the “ultimate cause” of historic events? Because Marx and Engels are trying to lay bare only the dynamics of human history. They are not seeking to discover causal relations in the universe as a whole. They are seeking to explain the social process. So far as human society goes they conceive that they have reached ultimate fundamentals when they

10. Engels, letter of 1894 in *Der Sozialistische Akademiker*, quoted in Seligman, *Economic Interpretation of History*, p. 59.

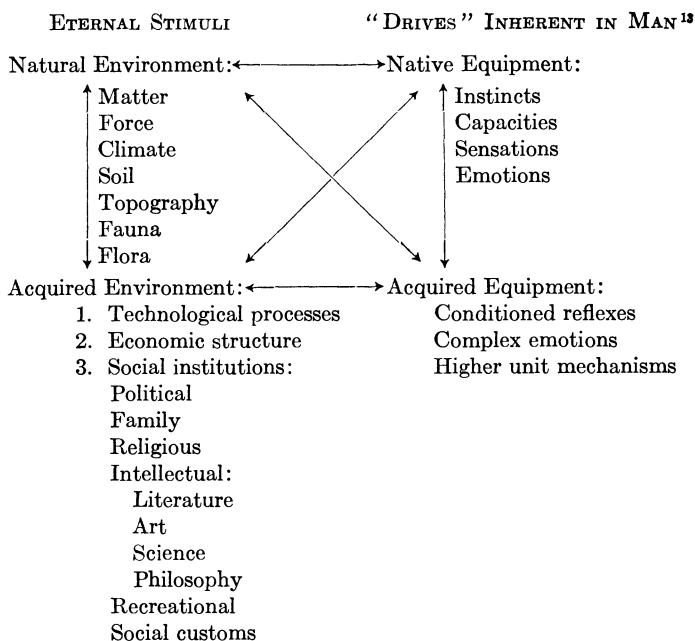
11. Marx and Engels, *Die Heilige Familie*, quoted in Engels, *Socialism, Utopian and Scientific*, Kerr edition, p. 16.

12. Marx, *Critique of Political Economy*, translation by Stone, p. 11.

have found the basis upon which social institutions rest. For them all social institutions are human adjustments to the prevailing technique of production. With the underlying causes for the changes in technique they are in the main not concerned. Whatever may be the reasons for these changes, all the institutions of society — economic, political, social, intellectual—are the results of the efforts of conscious, struggling human beings to adjust their social relations to their technical environment.

V

The accompanying diagram may help to place the Marxian theory against the broader background of fundamental factors and forces. We start with Man and Nature. Nature furnishes the natural environment



13. Cf. Woodworth, *Dynamic Psychology*.

which acts selectively upon human heredity resulting in races of men equipped with native instincts and capacities, sensations and emotions adapted to the selective environment. The natural environment also offers stimuli, evoking responses in the native equipment of man. This native equipment has survived because it constitutes a workable adjustment to nature. Different adjustments might no doubt have been possible, but through the trial and error method of nature certain types of human equipments have survived. Nature thus affects Man. But this is quite a different thing from contending, as would philosophical materialism, that you can explain Man in terms of Nature.

It is not necessary to go into detail regarding the causal interrelations of native equipment, acquired equipment, natural environment and acquired environment. A little reflection will soon convince one that the causal relation works both ways between any one of them and each of the other three. For our purposes it is sufficient to point out that Marx and Engels were concerned only with an explanation of social institutions and the law of social dynamics. As philosophical materialists, it is true, they have always as a background for their thinking the imminent forces of cosmic evolution. These forces expressing themselves through Man and Nature bring on changes in the technique of production. These changes serve as their starting point in explaining history. For them there is but one active, dynamic institution in society — the technical modes of production. All other institutions of society are conceived as passive. They would never change were it not for changes in the modes of production. An analogy may be found in Fisher's equation of exchange. Fisher conceives of M and T as active, dynamic factors; V , M' , V' and P are passive factors which change as M or T changes.

VI

Enough has been said to show the severe limitations of the Marxian theory. They may be summarized as follows:

1. The theory starts with changes in the technological processes. It does not reach back to the ultimate forces in life — the “drives” inherent in the native instincts and capacities, sensations and emotions, in the acquired equipment of man, and the “stimuli” afforded by the natural environment. Here are to be sought the real wellsprings of individual and social life.

2. The theory assumes that the one external condition to which man must make new adaptations in his social institutions is the technique of production. The assumption is not true. Changes in the natural environment, in climate and geography for example, profoundly alter the face of civilization, as Huntington has so ably shown. No doubt these changes work out their influence to a considerable extent through resulting changes in the modes of production, but not exclusively so.

3. The theory assumes that if no changes took place in the modes of production, social institutions would not change. The mere statement of this view of history shows how extremely mechanical it is. It completely overlooks the instinct of contrivance and invention, the constant effort of human beings through trial and error to find improved adaptations to their environment. Even tho man's environment never changed, social institutions would still change because of man's constant effort to find better adaptations to that environment.

4. The theory assumes that all social institutions are adaptations to external environment. It overlooks the fact that social institutions are also adaptations to the instincts, capacities and emotions inherent in man him-

self. Hence even tho no changes took place in the modes of production man would still seek to contrive superior forms of self-expression. Changes would thus take place, especially in religious, intellectual, and recreational institutions.

5. The theory assumes that but one single adaptation to given conditions is possible. "In the social production which men carry on they enter into definite relations that are *indispensable* and *independent of their will*." Hence the dogma of the inevitableness of socialism. But in reality the whole history of man is an application of the method of trial and error. The very fact that we are constantly trying out various solutions, none of which are perfect, indicates that there is no one single solution.

VII

Human beings are phlegmatic. Tradition and inertia are strong. Social institutions change slowly, for the simple reason that any change must get the support of the existing dominant social forces, or else the balance of power must be shifted. Hence, as a rule, social institutions are not changed until some powerful force comes along to pry them loose. The Marxian theory is a brilliant recognition of this fact. In modern times at any rate technological changes are taking place with astonishing rapidity. New social adjustments must necessarily follow. Profound technological changes compel attention to economic problems.

Modern social dynamics cannot be understood without searching out the effect of technology on civilization. It is one thing, however, to search out the influence of a single factor, and quite a different thing to refuse to seek out the influence of other factors. A useful tool need not be made a dogma.

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